



Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on Power Electronics Systems for Aerospace Applications

Scheduled Publication Time: March 2022

Aerospace applications were one of the first users of modern switching power electronics. Today, the requirements regarding reliability in very harsh environments (radiation, temperature, vacuum, ...) pose significant design challenges. Also, regulations regarding stability of the supplies, EMC and load requirements lead to particular solutions not found often in other fields of application. Moreover, with the advent of the electrification of transportation, higher power converters and drives are more commonly used in aviation with its own requirements and challenges. As reliability is paramount for both aeronautics and space applications, special emphasis will be made in reliability modeling and failure prediction systems to guarantee the reliability of Power Electronics Systems for Aerospace Applications.

This Special Issue is devoted to the latest developments and applications of *Power Electronics Systems for Aerospace Applications*. Prospective authors are invited to submit original contributions, survey papers, or tutorials, for review for publication in this Special Issue. Topics of interest include, but are not limited to:

- Power electronic systems for spacecraft and aircraft, including DC and AC microgrids. Applications include Unmanned Aerial Vehicles (UAVs) and High-Altitude Pseudo Satellites (HAPS).
- Energy conversion systems from DC power sources (Solar arrays, thermoelectric systems, fuel cells, batteries, ...) including direct energy transfer systems and DC/DC converter systems.
- Energy storage systems (battery cells, supercapacitors, fuel cells, etc.) and electronics to monitor, protect, and interface them, including chargers and charging systems.
- High power AC/DC and DC/AC converters and motor drives for aircraft applications enabled by wide band-gap semiconductor devices.
- Electrical distribution and protection systems for aircraft and space applications, including cryogenically cooled designs.
- Electrical power supply system design for electrical propulsion for space including high-power RF sources and high voltage designs.
- Electrical power supply system design for payloads (imaging equipment, sensitive instruments, etc.) including high voltage designs for applications such as TWTs.
- Radiation effects in devices and systems including COTS and wide-bandgap devices. semiconductors for power electronics
- Reliability prediction of power-electronic components under aeronautical/space-mission-profiles in uncontrolled environments
- Reliability oriented designs including model based fault detection and isolation and failure tolerant designs. With emphasis in sensing techniques.
- Design tolerant to high-thermal swing operations and related reliability issues
- Passive components (Capacitors, dielectrics, magnetic components, and materials). Modeling, characterization and design and applications
- EMI/EMC simulation, analysis, and design.

All manuscripts must be submitted through Manuscript Central at <http://mc.manuscriptcentral.com/jestpe-ieee>. Submissions must be clearly marked "**Special Issue on Power Electronics Systems for Aerospace Applications**" on the cover page. When uploading your paper, please select your manuscript type "Special Issue." Refer to <http://www.pels.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

Deadline for Submission of Manuscript: August 25th 2021

Guest Editors:

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Proposed Timeline:

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| • May 25 th , 2021 | – Call for Papers to IEEE JESTPE Editorial Office and Newsletter |
| • August 25 th , 2021 | – Manuscripts Submission Deadline |
| • November 30 th , 2021 | – Final Acceptance Notification |
| • January 30 th , 2022 | – Manuscripts Forwarded to IEEE for Publication |
| • March, 2022 | – Special Issue Appears in IEEE JESTPE |